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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/622,536	12/07/2000	Yu Suzuki	05905.0114	7233

22852 7590 06/14/2007  
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[REDACTED] EXAMINER

PRENDERGAST, ROBERTA D

[REDACTED] ART UNIT 2628  
[REDACTED] PAPER NUMBER

[REDACTED] MAIL DATE 06/14/2007  
[REDACTED] DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/622,536	SUZUKI ET AL.	
	Examiner Roberta Prendergast	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 20 April 2007.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 12 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 12 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

Applicant's election without traverse of claim 12 in the reply filed on 4/20/2007 is acknowledged.

Claims 1-11 and 13-14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made without traverse in the reply filed on 4/20/2007.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tarlton et al. U.S. Patent No. 5923330 in view of Hon Wai Chun; Ming-Kit Lai, E.; "Intelligent critic system for architectural design", IEEE Transactions on Knowledge and Data Engineering, Volume 9, Issue 4, July-August 1997, pages 625–639, hereinafter Chun et al.

Referring to claim 12, Tarlton et al. teaches an image generating device which requests images of components completed by arranging and structuring virtual components in a virtual three-dimensional space (columns 1-2, lines 45-63; column 3, lines 5-11 and 22-36; columns 3-4, lines 59-15; column 5, lines 15-40; column 7, lines 15-54; column 10, lines 9-20, i.e. a system having a computer containing a display, a CPU, memory and is connected to a network such that the computer generates a presentation space output through the image output means is understood to be the image generating device and creating and updating a presentation space by populating the presentation space with visualization elements/components created for each of the nodes in the scene graph such that the visualization elements/components are scaled, rotated, or moved and determining which visualization elements/components are culled

based on their visibility within the presentation space indicates arranging and structuring the visualization elements/components in the virtual three-dimensional presentation space), characterized in comprising: storage means for priorly storing differences of at least the type, attribute, and arranged environment of said components and parameters corresponding thereto (Fig. 18; column 3, lines 1-8 and 40-58; column 4, lines 58-67; column 5, lines 63-66, i.e. a storage database connected to the computer through the network, wherein nodes having a type, attributes and a region, is understood to be the storage means storing differences of the type, attributes and region/arranged environment of the nodes/components); selection means for designating said parameters and selecting said component (column 3, lines 8-22; column 5, lines 10-16; columns 5-6, lines 63-17, i.e. parameters are used to select a storage means or database and findNodes(), getNodeAttributes() and follwRelation() are understood to be selecting means for selecting components); and arranging means for arranging the selected component and structuring said completed component (column 5, lines 5-40; column 7, lines 15-54, i.e. the processing means is understood to be the arranging means for arranging and structuring the selected components in the presentation space and creating and updating a presentation space by populating the presentation space with visualization elements/components created for each of the nodes in the scene graph such that the visualization elements/components are scaled, rotated, or moved and determining which visualization elements/components are culled based on their visibility within the presentation space indicates arranging and structuring the

selected visualization elements/components in the virtual three-dimensional presentation space) but does not specifically teach arranging means for arranging the selected component with an algorithm simulating human sensitiveness and structuring said completed component.

Chun et al. teaches this limitation (Figs. 1-6; pages 627-628, section 4.2 Object Knowledge Base, 1<sup>st</sup>-2<sup>nd</sup> and 4<sup>th</sup>-5<sup>th</sup> paragraphs; pages 636-637, section 7-7.6, i.e. IDX rules defining where objects should be placed based on what people think is understood to be arranging and structuring components based on human sensitiveness).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Tarlton et al. to include the teachings of Chun et al. because defining where objects should be placed based on floor plan design and interior design principles allows an image generating device to arrange components in the virtual space based on well known user preferences defined in the FPDX and IDX design rules (Chun et al.: page 625, section 1 Introduction; page 636, section 7 The IDX Critic Module and section 7.2 Proximity of Objects).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following U.S. Patents are cited to further show the state of the art with respect to arranging and structuring virtual components in a virtual three-dimensional space.

Howard U.S. Patent No. 5601431

Kamada et al. U.S. Patent No. 5712964

Hirota et al. U.S. Patent No. 5825365

Murata et al. U.S. Patent No. 5870101

O'Brill et al. U.S. Patent No. 5937081

Carey et al. U.S. Patent No. 5977978

Gantt U.S. Patent No. 6016147

Robotham et al. U.S. Patent No. 6084590

Miyauchi et al. U.S. Patent No. 6115045

The following non-patent literature is cited to further show the state of the art with respect to arranging and structuring virtual components in a virtual three-dimensional space.

Fung, W.L.; Chun, H.W.; "Representing spatial knowledge in design", TENCON '92. Technology Enabling Tomorrow : Computers, Communications and Automation towards the 21st Century, 1992 IEEE Region 10 International Conference, Vol. 2, pages 700-704.

Armando, A.; Pecchiari, P.; "NALIG: A CAD system for interior design with high level interaction capabilities", Proceedings of Fifth International Conference on Tools with Artificial Intelligence, Nov. 1993, pages 446-447.

Gudivada, V.N.; Jung, G.S.; "Spatial knowledge representation and retrieval in 3-D image databases", Proceedings of the International Conference on Multimedia Computing and Systems, May 1995, pages 90-97.

"Alice: rapid prototyping for virtual reality", Lawrence J. Rosenblum, editor, IEEE Computer Graphics and Applications, Volume 15, Issue 3, May 1995, pages 8-11.

SAUCE et al., "A Knowledge-Based System for Construction-Site Organization", Microcomputers in Civil Engineering, vol. 10, no. 3, pages 187-197, 1995.

Giunchiglia, E.; Armando, A.; Traverso, P.; Cimatti, A.; "Visual representation of natural language scene descriptions", IEEE Transactions on Systems, Man and Cybernetics, Part B, Volume 26, Issue 4, Aug. 1996, pages 575-589.

RAU-CHAPLIN et ah, "Graphics Support for a Word-Wide-Web Based Architectural Design Service", Computer Networks and ISND Systems, vol. 29, no. 14, pages 1611-1623, October 1, 1997.

Gudivada, V. N., Bhuyan, J., and Adusumilli, R.; "A retrieval technique for virtual reality databases", *Proceedings of the 1997 ACM Symposium on Applied Computing*, B. Bryant, J. Carroll, J. Hightower, and K. M. George, Eds., ACM Press, NY, NY, pages 328-333.

Heng Li; Love, P.E.D.; "Visualization of building interior design to reduce rework", Proceedings of 1998 IEEE Conference on Information Visualization, July 1998, pages 187-191.

LEWIS et al., "Generation of 3D Building Models from 2D Architectural Plans", Computer-Aided Design, vol. 30, no. 10, pages 765-779, September 1998.

Building System Device for Architectural/Living Space Furniture Layout and Related Data Using the Internet, Translation of Japan Patent Document No. 10-97558, published April 1998.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberta Prendergast whose telephone number is (571) 272-7647. The examiner can normally be reached on M-F 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RP 5/9/2007



Ulka Chauhan

Supervisory Patent Examiner